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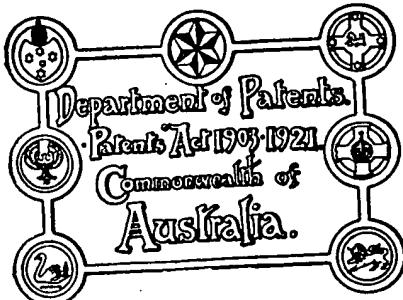
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No. 6943/27.

APPLICATION DATED

19th April, 1927.

Applicant
Application and Provisional Specification
Complete Specification
Acceptance Advertised (Sec. 50)

JAMES HENRY PEASE.
Accepted 26th May, 1927.
Accepted 7th June, 1928.
19th June, 1928.

Classes 22.2 ; 06.6.

Drawing attached.

COMPLETE SPECIFICATION.

"Improvements in and relating to miners' electric safety lamps."

I, JAMES HENRY PEASE, Electric Engineer, of Kearsley, in the State of New South Wales, Commonwealth of Australia, hereby declare this invention and the manner in which it is to be performed to be fully described and ascertained in and by the following statement:—

This invention relates to miners' electric lamps of the type which include an accumulator and a lamp proper connected by flexible cables and its object is to provide a lamp having certain improvements which render it safer in many respects and better adapted for the conditions under which it may likely be used.

These improvements may be epitomised as follows:—

(a) The lamp is connected to the accumulator by flexible conductors or cables housed in an air tight flexible armour tube and thus protected against damage. It has formerly been the practice in lamps of this type to pass the connecting cables through a coil spring which while effective as protection for the cable insulation against damage from friction or kinking, does not protect the cables against rupture from a blow or squeeze to the same extent as does an air tight armour tube, nor does it exclude moisture, gas or air.

(b) The prevention of access of the electrolyte to the terminals or cables.

(c) The provision of an automatic switch which is maintained closed by the intact glass or lens or the lamp but is opened to extinguish the lamp should this glass be fractured by impact.

(d) The provision of means for locking the accumulator case so that it cannot be opened except by magnetic influence.

(e) Simplicity of construction and lightness in weight.

These improvements are shown in the embodiment of my invention depicted in the accompanying drawings to which reference will now be made in order to clearly explain and ascertain the invention.

In the drawings,

Fig. 1 is a perspective view of the complete outfit, the lamp being shown in full lines separate from the accumulator and is affixed to a miners' cap (part of the latter being shown in dotted line, also portion of the connecting armour tube housing the cables); this figure also shows in dotted lines the lamp attached to the accumulator case;

Fig. 2 is an elevation partly in section showing the accumulator casing partly broken away to disclose the contained accumulator;

Fig. 3 is a perspective view partly broken away of the case portion of the lamp;

Figure. 4 is a sectional elevation of the lamp.

The accumulator casing 1 preferably made of aluminium to ensure lightness, is fitted externally with a cleat 2 for the reception of a belt or strap 3 (see Fig. 1) and with a cleat 4 to receive the tang of the lamp when the whole outfit is carried on the wrist or in the hand.

The casing is fitted with a hollow lid 5 hinged at 6 and equipped with a lock consisting or a bolt 7 of magnetic material 15 backed by a spring 8 within a closed housing 9 integral with the lid 5, said housing having a cover 10 secured by any suitable means not readily released so that to withdraw the bolt 7 without removing the cover 10 it is necessary to employ magnetic force.

Within the casing 1 is the accumulator 11 having terminals 12—12 which when the lid 5 is closed meet respectively contacts 13—13 in an insulating block 14 fitted in 25 the hollow lid 5. These contacts 13—13 are respectively connected by screws 15 to plates 16—16 on top of the block 14 which is recessed to accommodate them. To these plates 16—16 are attached respectively the 30 cables 17—17. The block 14 is a fluid-tight fit in the cover, and the contacts 13 are a fluid-tight fit in the block 14, while the threaded bores of contacts 13, receiving screws 15 are closed by plugs 18, for the purpose of preventing electrolyte or vapour reaching the cables 17—17. The contacts 12 and 13 and plugs 18 are nickel plated to resist corrosive action of the electrolyte and always present clean surfaces ensuring 40 maximum conductivity.

The lid 5 is fitted with a handle 19 to enable the whole outfit to be conveniently carried in the hand.

The cables 17—17 pass through the lid 45 5 and through a gland or ferrule 20 secured thereto and to which is secured by sweating or other suitable means one end of the flexible armour-tube 21. At its other end this tube 21 is connected to the lamp casing 50 as clearly shown in Fig. 4.

The cables 17 passing through this tube are protected thereby against damage.

The lamp itself comprises a casing formed in two parts one being a base 22 of cylindrical form with closed outer end to which the flexible armour-tube 21 is connected,

while the other or outer part or casing 23 carrying the glass 24 and reflector 25 is formed with a cylindrical portion neatly fitting on the base 22 and provided with one or more angle-slots 26 (Fig. 1) which co-operate with a stud or studs 27 on the base to constitute what is known as a bayonet connection. To enable the base and the casing to be locked together registering lugs 28 and 29 are carried by these parts respectively to provide for the application of any suitable type of locking or sealing means.

In the base is fitted a block 30 of insulating material which carries in the centre a terminal bolt 31 to which one of the cables 17 is connected. On the front face of this block is fixed a metal plate 32 integral with which is a socket 33 for the incandescent lamp 34. When this lamp 34 is in place its contact 35 bears upon terminal bolt 31. A second metal plate 36 is also fixed on the front of the block 30 and is electrically connected by terminal bolt 37 to the other cable 17. Connection between the plates 32 and 36 to complete the circuit through the lamp 34 is made by means of a switch which consists of an arm or lever 38 pivoted in a forked stud 39 affixed to plate 36, and having one end making a neat sliding fit in a forked stud 40 mounted on the other plate 32. The other end of arm 38 takes in a slot in a light rod 41 of vulcanite or other suitable non-conducting material freely slideable in a hole 35 in the insulating block 30. When the arm 38 engages forked stud 40 the other end holds the rod 41 in such position that its outer end abuts against the glass or lens 24, the frictional grip of fork 40 on the arm 40 38 being sufficient to maintain the parts in this position. Should, however, the glass 24 be fractured by impact of any object the rod 41 will be pressed inwardly to open the switch and extinguish the lamp; before, from the same or other cause, the globe of the lamp 34 is fractured. Thus even should the lamp globe be fractured in an inflammable atmosphere there is little risk of explosion resulting as the filament will have ceased to glow before any gas could reach it.

On the base of the lamp is a tang 42 capable of fitting in the cleat 4 on the accumulator casing and supporting the lamp thereon, or in a cleat 43 on a miner's cap 44 (see Fig. 1).

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10 2. A m forth, in vided with automatic of magnet
15 3. A m forth, inc vided with material f contact st tering res contained

Having now fully described and ascertained my said invention and the manner in which it is to be performed, I declare that what I claim is:

- 5 1. A miner's electric lamp outfit of the type set forth in which the lamp is connected to the accumulator by flexible cables threaded through a protective airtight flexible armour tube.
- 10 2. A miner's lamp outfit of the type set forth, in which the accumulator case is provided with a hinged lid equipped with an automatic enclosed lock comprising a bolt of magnetic material backed by a spring.
- 15 3. A miner's lamp outfit of the type set forth, including an accumulator case provided with a hollow lid, a block of insulating material fitted in said hollow lid, a pair of contact studs through said block and registering respectively with the terminals of the contained accumulator when the lid is closed,

the other ends of said studs respectively engaging terminal plates to which the conducting cables are respectively connected.

4. In a lamp outfit of the type set forth, a lamp including a casing having at its front end a glass or lens, a glow lamp within the casing in a circuit including a normally closed switch, and means as herein described and shown operating to open the switch on the impact of a body sufficient to break in 10

the glass front.

5. A miner's lamp outfit as herein described and shown in the accompanying drawings.

Dated this 31st day of January, A.D. 1928. 15

JAMES HENRY PEASE,
By his Patent Attorney,
ARTHUR GRIFFITH.

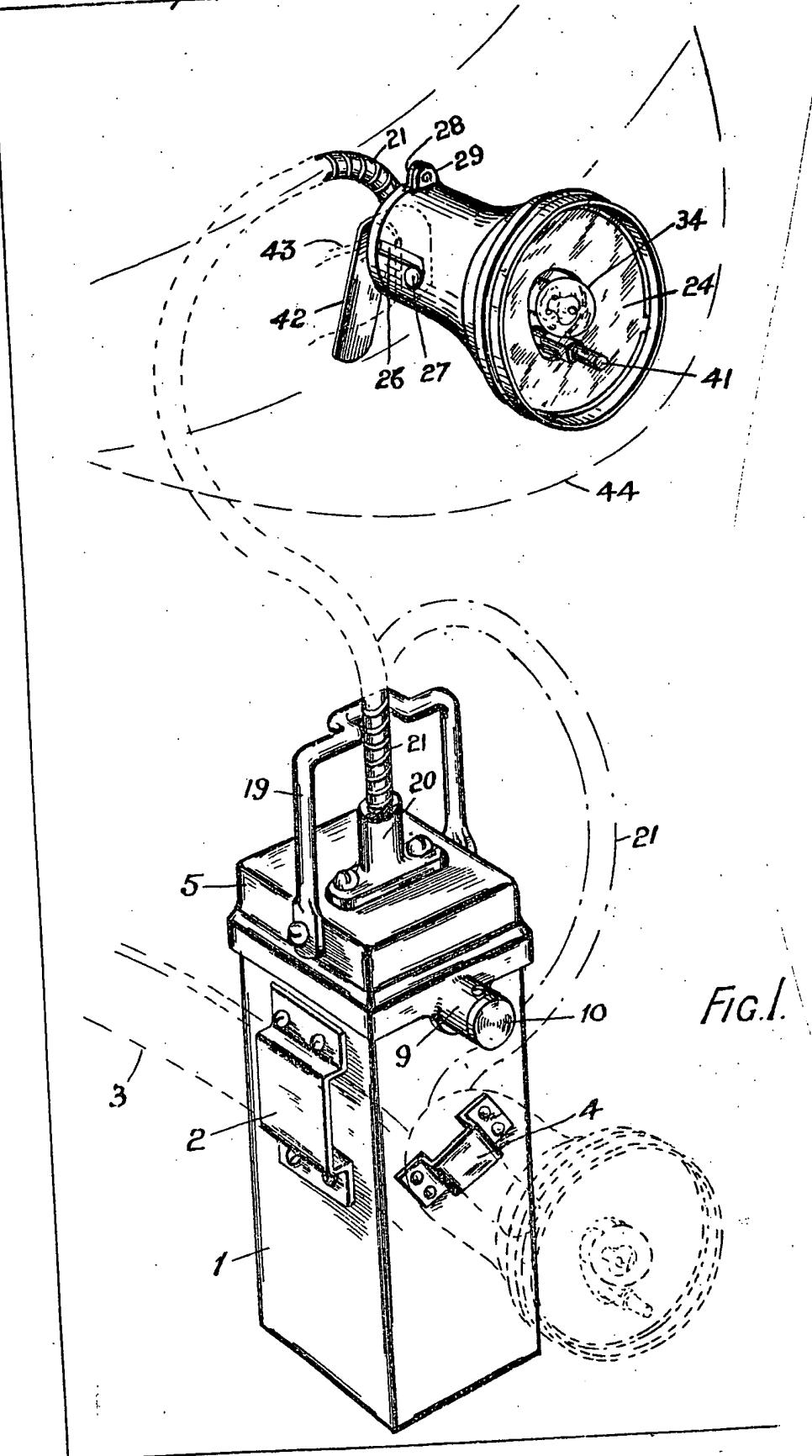
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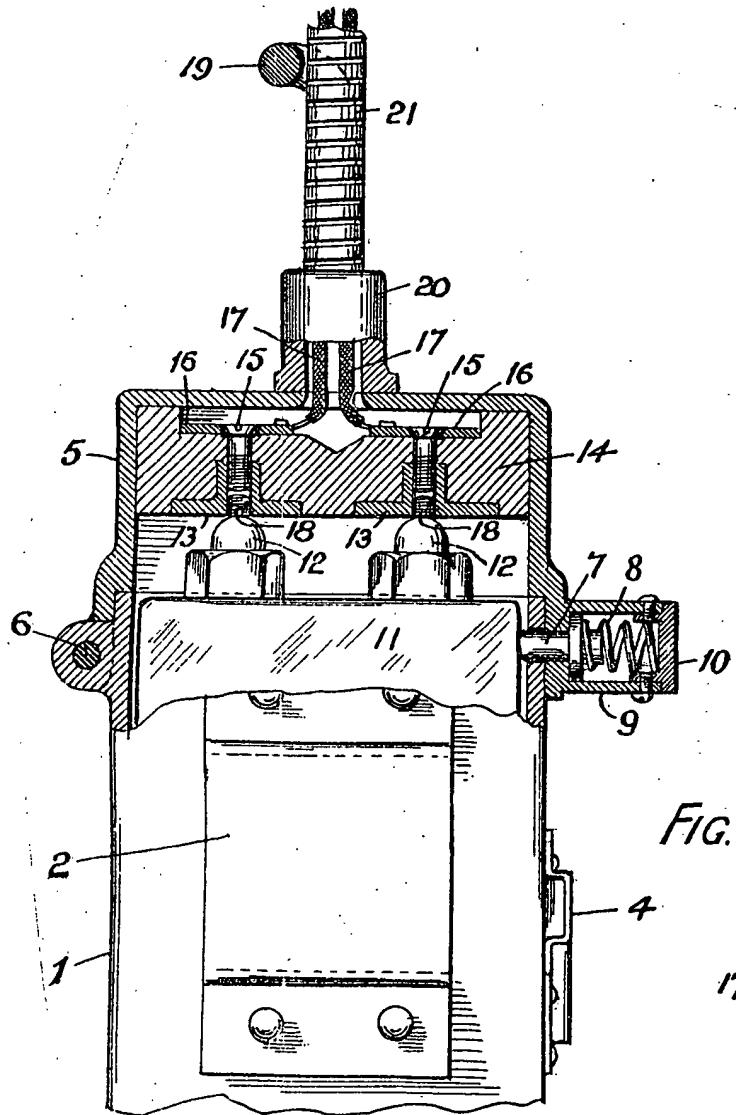


FIG. 2.

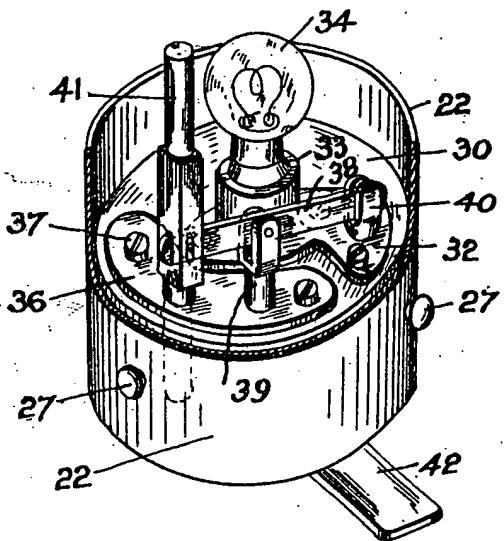


FIG. 3.

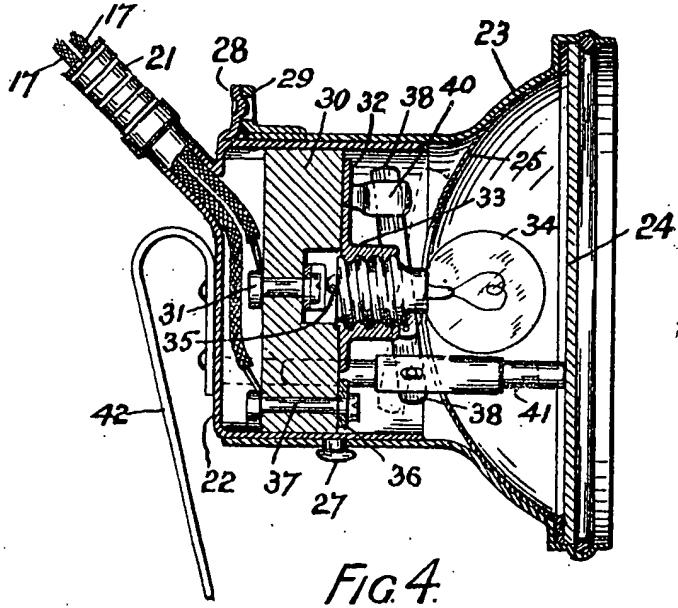


FIG. 4.